

CLARIFICATION NUMBER CAO-00-018, REV. 3
RADIOGRAPHY QUALIFICATIONS

ISSUE

1. What are the qualifications and experience of the appointed site radiography subject matter expert? B1-3b, B1-3b(1), B1-3b(2), and B1-3b(3)
2. How is he/she appointed? B1-3b
3. Can the radiography subject matter expert be a subcontractor? B1-3b
4. What are the qualifications and experience of the radiography technical supervisor? B-1c and B1-3b(2)
5. If a site will process only one waste stream at a time, would it be sufficient for the initial radiography operator and visual examiners training to address only the waste types, processes, and packaging configurations for that waste stream? B1-3b, B1-3b(2), and B1-3b(3)
6. Does the person designated to review one percent of the radiography tapes in Section B-1c have to be trained the same as a radiography operator? B-1c
7. What is the minimum number of Radiography Operators required by the Permit? B1-3b
8. Does the Site Project QA Officer require the same training as the radiography operator in order to fulfill the permit requirements with regard to monitoring radiography program quality? B1-3b(2)

CONCLUSION

1. Radiographers must meet the training requirements of Permit Section B1-3b.
2. The Permit does not specify the manner in which the subject matter expert is to be appointed. The generator site should document this appointment with a letter to file.
3. The permit does not prohibit the use of subcontractors in the role of the radiography subject matter expert.

4. The training requirements for a radiography technical supervisor are not specified in the Permit, therefore the generator site will specify this training in their training plan.
5. WAP Sections B1-3b and B1-3b(3) require the operators to be trained to specific waste generating practices and processes, waste material parameters, and typical packaging configurations that are found in each Waste Matrix Code at the site. To comply with this requirement, operators should be trained in the general historic practices at the site. This is to ensure that the operators can identify waste from various processes and therefore determine if the waste is in the appropriate waste stream.

If a site is processing only one waste stream at a time, the site can meet radiography and visual examination training requirements by ensuring that the operators are trained on the types, processes, and packaging configurations for the waste stream that is currently being processed. When characterization on a new waste stream begins, operators must undergo training specific to that waste stream.

6. No. The permit requires that a consistent training standard be used for defining the training programs for radiography operators and for personnel who review tapes. However, each must receive training that is commensurate with their level of responsibility.
7. The permit requires a minimum of two radiography operators.
8. No. The permit does not require the Site Project QA Officer to be trained to the same requirements as the radiography operator. (See Clarification 32.)

DISCUSSION

1. Section B1-3b(2) provides a discussion of radiography qualifications:

These items shall be successfully identified by the operator as part of the qualification process. Qualification of radiography operators shall, at a minimum, encompass the following requirements:

Successfully pass a comprehensive exam based upon training enabling objectives. This exam will be reviewed as part of the Permittees' Audit and Surveillance Program (Permit Attachment B6). The comprehensive exam will address all of the Radiography operation, documentation, characterization, and procedural elements stipulated in this WAP.

Perform practical capability demonstration in the presence of appointed site radiography subject matter expert. This person is an experienced radiography operator who is qualified as an OJT trainer.

From the permit language above, a radiography subject matter expert is an experienced radiography operator who is qualified as an on-the-job (OJT) trainer. Radiography training requirements are detailed in the complete text of Section B1-3b. Requirements for OJT trainers should be prescribed in the site's QAPjP and implementing procedures as specified by Permit Section B3-14.

2. The radiography subject matter expert is appointed in accordance with site's QAPjP or implementing procedures.
3. The Permit does not prohibit the generator sites from using subcontractors to perform the duties of a radiography subject matter expert.
4. Radiography technical supervisors are those persons responsible for the overall technical operation of the generator site's radiography program and their training should be commensurate with this responsibility.

This training should include familiarity with applicable processes and procedures and indoctrination in the QAPjP, QAPD, and WAP. These training requirements, as well as entry level requirements, must be documented in the site Training Plan.

5. Permit Attachment B1-3b states:

In addition, the particular physical forms and packaging configurations at each site will vary; therefore, radiography operators shall be trained on the types of waste that are generated, stored, and/or characterized at that particular site

Permit Attachment B1-3b(3) states:

Visual inspectors shall be instructed in the specific waste generating processes, typical packaging configurations, and expected waste material parameters expected to be found in each Waste Matrix Code at the site. The OJT and apprenticeship shall be conducted by an operator experienced and qualified in visual examination prior to qualification of the candidate. The training shall be site specific to include the various waste configurations generated/stored at the site.

The Permit addresses the need for flexibility by the generator site to conducting training specific to the waste streams which are anticipated at the generator sites. If at any given time the generator site's training program for radiography and visual inspectors includes the types of waste being characterized at the site, then this is adequate.

6. The determination of training requirements for radiography operators by the NMED in the permit was based on information provided in the WIPP Permit Application and in the Methods Manual. These words are repeated in Section B1-3b of the permit as follows:

Standardized training requirements for radiography operators shall be based upon existing industry standard training requirements and shall comply with the training and qualification requirements stipulated in this WAP.

In this context, the term "industry standard" refers to a consensus standard used by industry to define the scope and content of training programs. One such standard that is used is the American Society of Nondestructive Testing (ASNT) SNT-TC-1A, Personnel Qualification and Certification in Nondestructive Testing. The reason that "industry standards" are used is because there are no equivalent specific RCRA or EPA training standards for radiography. Therefore, the NMED relies on those that are established as generally accepted industry standards.

In the case of the requirement in Section B-1c, the NMED states that "... All personnel who review radiography video tapes will be trained to the same standard as radiography operators. ..." This is interpreted to mean that in identifying the training requirements for each person that has a responsibility with regard to radiography, the appropriate portions of an industry standard are to be implemented and that the same industry standard is to be used for all radiography programs. Therefore, the individuals responsible for checking one percent of the radiography tapes (referred to herein as radiography reviewers) must have appropriate training. The permit requires that training be defined in site specific documents. In other words, when defining what level of training is appropriate for the radiography reviewer, the Permittees need to consider the same training standard that is used for the definition of the appropriate training for radiography operators. The training itself need not be identical. If the NMED had intended that the radiography reviewer have identical training, then statements similar to those in Section B-3d(1) which specifically state that the second person be "equally trained to the requirements stipulated in Permit Attachment B3" would be included.

7. Section B1-3b specifies that "Only trained personnel shall be allowed to operate the radiography equipment." The Section further defines the training requirements for operators, including the quality control (QC) for operator performance. Two such QC measures involve "independent" replicate scans and observations of radiography results. The term "independent" means that the activity is performed by "...a qualified radiography operator other than the individual who performed the first examination." This means that a minimum of two qualified radiography operators are needed, each serving as the independent technical reviewer for work performed by the other.

A discussion of how the Site Project QA Officer (SPQAO) performs monitoring of radiography data quality is included in Clarification CAO-00-032.

8. The SPQAO's training should be commensurate with his or her permit-required responsibilities. Since the SPQAO is not responsible for the performance of radiography or responsible for providing the QC check (i.e., viewing) of one videotape per testing batch, the SPQAO does not need to be trained to the same requirements as the radiography operator.